

Claims

- [c1] 1. A water supply sub-system for connection to a main water supply system, said sub-system comprising:
- a storage tank having an inlet for connection to said main water supply system, and an outlet;
 - a flow control valve connected to said inlet;
 - an outlet line connected to the outlet of said storage tank;
 - a pump connected to said outlet line;
 - a sub-system supply line connected to said pump, said supply line forming a fluid flow feedback loop to said storage tank;
 - at least one branch connection connected to said sub-system supply line;
 - a shunt feedback line connected to said pump and to said tank in parallel fluid flow to said supply line;
 - a pressure regulatory assembly in said shunt feedback line, and
 - an inlet coupling connected to said inlet adapted to selectively connect or disconnect said inlet to said main water supply system and a mating coupling in fluid communication with said tank, said mating coupling being adapted to selectively receive said inlet coupling,

whereby an independent disinfectant system may be established in said subsystem.

- [c2] 2. A sub-system according to claim 1 wherein said mating coupling is in said shunt feed-back loop.
- [c3] 3. A sub-system according to claim 1, further comprising a disinfectant inlet port in said tank.
- [c4] 4. A sub-system according to Claim 1 further comprising a check valve in said inlet.
- [c5] 5. A sub-system according to Claim 1 further comprising a fluid volume control in said tank connected to said inlet.
- [c6] 6. A sub-system according to Claim 5 wherein said fluid volume control comprises an inlet valve and a float arm coupled to said inlet valve.
- [c7] 7. A sub-system according to claim 1 wherein said pressure valve further comprises a pressure sensor.
- [c8] 8. A sub-system according to claim 1 wherein said tank further comprises a filtered vent.
- [c9] 9. A sub-system according to Claim 1 wherein a water-using device is connectable to said branch connection to receive water from said water supply sub-system.

- [c10] 10. A sub-system according to Claim 9 wherein said water using device is a dialysis machine.
- [c11] 11. A sub-system according to Claim 1 further comprising a drain connected to said sub-system supply line.
- [c12] 12. A sub-system according to Claim 1 wherein said shunt feedback loop is disposed downstream from said at least one branch connection.
- [c13] 13. A sub-system according to Claim 1 in which said storage tank has a spray head disposed therein, said spray head being connected to said feedback loop to receive recirculated water therefrom and spray said recirculated water into said storage tank.
- [c14] 14. A sub-system according to Claim 1 in which said storage tank has a spray head disposed therein, said spray head being connected to said inlet to said tank and being disposed to spray inlet water into said storage tank.
- [c15] 15. A sub-system according to Claim 1 further comprising an ultrafiltration device disposed in said supply line downstream of said pump and upstream of said at least one branch connection.
- [c16] 16. A water supply system comprising

a water processing unit;
a main inlet line connected to said water processing unit;
a main outlet line leading from said water processing unit;
a plurality of main branch connections emanating from said main outlet line; and
a water supply sub-system connected to said main water supply system, said sub-system comprising:
a storage tank having an inlet and an outlet, said inlet being connectable to one of said plurality of main branch connections with an inlet coupling and having a flow control valve connected thereto;
an outlet line connected to the outlet of said storage tank;
a pump connected to said outlet line;
a sub-system supply line connected to said pump;
at least one sub-system branch connection connected to said sub-system supply line;
a shunt feedback line connected between said supply line and said tank;
a pressure regulatory assembly in said shunt feedback line, and
a mating coupling in fluid communication with said shunt feedback line and adapted for selectively coupling with said inlet coupling, forming an isolated sub-system.

- [c17] 17. A water supply system according to claim 16 further comprising a disinfectant access port wherein disinfectant can be circulated in said sub-system when said inlet coupling is connected to said mating coupling.
- [c18] 18. A water supply system according to Claim 17 wherein the water processing unit is a water purification device.
- [c19] 19. A water supply system according to Claim 17 wherein the water processing unit is a water storage device.
- [c20] 20. A water supply system according to Claim 17 wherein a water-using device is connected to one of said plurality of main branch connections emanating from said main outlet line.
- [c21] 21. A method for providing water from a main water supply system to a high demand device without adversely impacting the water flow parameters of the water flowing in said main water supply system, said method comprising,
connecting a supply sub-system to said main supply system, said sub-system comprising:
a storage tank having an inlet for connection to said main water supply system, and an outlet;

an outlet line connected to the outlet of said storage tank;

a pump connected to said outlet line;

a shunt feedback line connected between said pump and said tank; and

a pressure regulatory assembly in said shunt feedback line;

connecting a high demand device to said supply sub-system;

flowing water from said main water supply system and into said sub-system through a flow control valve at a reduced rate such that water pressure in said main supply system is relatively constant;

flowing water in said sub-system to said high demand device for its use; and

controlling water supply to said high demand device by regulating water pressure in said shunt feedback line by using a pressure regulator assembly, and,

at selected intervals, disinfecting the sub-system using a chemical whereby the sub-system is isolated from main supply system during the disinfecting step by disconnecting said inlet from said main water system and

connecting said inlet to a high-pressure side of said pump.